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| 10/722,809 | 11/26/2003 | Eunsoo Shim | 02003 | 8121 |

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| EXAMINER | |
|---|---|
| SABOURI, MAZDA | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2617 | |

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/722,809 | SHIM ET AL. | |
| | Examiner | Art Unit | |
| | Mazda Sabouri | 2617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, filed 7/24/2006, with respect to the rejection(s) of claim(s) 1-20 under USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new art.

2. Applicant's arguments with respect to claims 21-31 have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendment to claims 21-31 necessitated the new ground(s) of rejection presented in this Office action.

### *Claim Rejections - 35 USC § 102*

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. **Claims 1-3,5-8,10,11 and 13-16** rejected under 35 U.S.C. 102(b) as being anticipated by INTERNET DRAFT "A Dynamic Protocol for Candidate Access-Router Discovery" (Trossen et al.). **Note that the pages cited from Trossen are the page numbers as defined within the article**.

4. **As to claim 1**, Trossen teaches a method comprising the steps of:

a. Providing a mobile terminal with information identifying a first access node prior to handoff to another access node (MN has the IP address of the PAR).

b. After handoff of the mobile terminal to a second access node, receiving at the first access node, a message from the second access node requesting

verification of information provided by the mobile terminal to the second access node (PAR verifies the accuracy of the information provided to the NAR by the MN).

c. Verifying the information provided by the mobile terminal to the second access node before updating information on candidate access nodes in the mobile communication network (once the information is verified, the NAR stores the information provided by the MN in it's CAR list) (see Trossen, pages 3 and 4).

5. **As to claim 11**, Trossen teaches a first access node (PAR) comprising memory for storing information on candidate access nodes in a mobile communication network and a processor that executes device-readable instructions for performing the steps of:

d. Providing a mobile terminal with information identifying the first access node prior to handoff to another access node (MN has the IP address of the PAR).

e. After handoff of the mobile terminal to a second access node, receiving a message from the second access node requesting verification of information provided by the mobile terminal to the second access node (PAR verifies the accuracy of the information provided to the NAR by the MN).

f. Verifying the information provided by the mobile terminal to the second access node before updating information on candidate access nodes in the mobile communication network (once the information is verified, the NAR stores the information provided by the MN in it's CAR list and the PAR also stores information on the NAR) (see Trossen, pages 3 and 4).

6. **As to claim 2**, Trossen further teaches that the information on candidate access nodes is recorded in a table (CAR list) and shared among mobile terminals in the mobile communication network (CAR list is transmitted to the MN, it is inherent that all MN in the NAR network would receive this list) (see Trossen, page 6).

7. **As to claim 3**, Trossen further teaches that the information identifying the first access node comprises the network address (IP address) of the first access node (see Trossen, page 3).

8. **As to claims 5 and 13**, Trossen further teaches that the information provided by the mobile terminal to the second access node is verified by measuring delay occurring during handoff of the mobile terminal to the second access node (NAR checks with the PAR to see if the MN was recently present in the PAR's network) (see Trossen, page 4).

9. **As to claim 6**, timestamps are inherent to the teachings of Trossen cited in the rejection of claim 5. A timestamp must be used to determine whether or not the mobile terminal was recently present in the PAR's network.

10. **As to claims 7 and 14**, Trossen further teaches that the information provided by the mobile terminal to the second access node comprises an identifier for the mobile terminal and wherein the information is verified by checking whether the mobile terminal that provided the information to the second access node is the same mobile terminal that communicated with the first access node prior to handoff (NAR checks with the PAR to see if the MN was recently present in the PAR's network. The identity of the MN must be sent to the NAR, in order to perform this step) (see Trossen, page 4).

11. **As to claims 8 and 15**, Trossen further teaches that the message from the second access node is authenticated (PAR confirms the validity of the information) (see Trossen, page 4).

12. **As to claims 10 and 16**, Trossen further teaches that the mobile terminals are IP devices and the access nodes are IP routers (see Trossen, page iv).

### *Claim Rejections - 35 USC § 103*

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. **Claims 4,12 and 17-20**, rejected under 35 U.S.C. 103(a) as being unpatentable over INTERNET DRAFT "A Dynamic Protocol for Candidate Access-Router Discovery" (Trossen et al.) in view of US 7065340 (Einola et al.)

15. **As to claims 4 and 12**, what is lacking is the information provided by the mobile terminal to the second access node comprising a ticket generated by the first access node. In a similar field of endeavor, Einola teaches a mobile terminal receiving a ticket (cipher key) from a first access node (first base station in the first mobile communication network) prior to handoff. After handoff, the mobile terminal provides the ticket to a second access node (second base station in the second mobile communication network). The second access node verifies the ticket with the first access node (the

second base station verifies the cipher code provided by mobile terminal against the cipher code provided by the first base station) (see Einola, column 8, lines 4-22). The teaching of Einola allows the second access node to authenticate a mobile terminal after handoff. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Einola into those of Trossen, for the reasons mentioned above.

16. **As to claim 17**, Trossen teaches a mobile terminal comprising memory and a processor for performing the steps of:

g. Prior to handoff to another access node, receiving information (IP address of PAR) identifying a first access node.

h. Storing the information identifying the first access node.

i. After handoff of the mobile terminal to a second access node, sending the information identifying the first access node to the second access node, so that the second access node can verify the information provided by the mobile terminal with the first access node prior to updating information on candidate access nodes (PAR verifies the accuracy of the information provided to the NAR by the MN. Once the information is verified, the NAR stores the information provided by the MN in its CAR list) (see Trossen, pages 3 and 4).

j. What is lacking is the information provided by the mobile terminal to the second access node comprising a ticket generated by the first access node. In a similar field of endeavor, Einola teaches a mobile terminal receiving a ticket (cipher key) from a first access node (first base station in the first mobile

communication network) prior to handoff. After handoff, the mobile terminal provides the ticket to a second access node (second base station in the second mobile communication network). The second access node verifies the ticket with the first access node (the second base station verifies the cipher code provided by mobile terminal against the cipher code provided by the first base station) (see Einola, column 8, lines 4-22). The teaching of Einola allows the second access node to authenticate a mobile terminal after handoff. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Einola into those of Trossen, for the reasons mentioned above.

17. **As to claim 18**, Trossen further teaches that the information provided by the mobile terminal to the second access node is verified by measuring delay occurring during handoff of the mobile terminal to the second access node (NAR checks with the PAR to see if the MN was recently present in the PAR's network) (see Trossen, page 4).

18. **As to claim 19**, Trossen further teaches that the information provided by the mobile terminal to the second access node comprises an identifier for the mobile terminal and wherein the information is verified by checking whether the mobile terminal that provided the information to the second access node is the same mobile terminal that communicated with the first access node prior to handoff (NAR checks with the PAR to see if the MN was recently present in the PAR's network. The identity of the MN must be sent to the NAR, in order to perform this step) (see Trossen, page 4).

19. **As to claim 20**, Trossen further teaches that the mobile terminals are IP devices and the access nodes are IP routers (see Trossen, page iv).

20. **Claim 9** rejected under 35 U.S.C. 103(a) as being unpatentable over INTERNET DRAFT "A Dynamic Protocol for Candidate Access-Router Discovery" (Trossen et al.) in view of US 2004/0123142 (Dubal et al.).

21. **As to claim 9**, what is lacking is putting a limit on the number of message sent by the mobile terminal prior to verifying the information provided by the mobile terminal. In a similar field of endeavor, Dubal teaches placing limits on messages (received packets) between elements in a network. Dubal teaches that such limits help to prevent denial of service attacks (see Dubal, paragraphs 15-19 and figure 4). The teachings of Dubel improve upon the method of Trossen by implementing steps to help prevent against denial of service attacks. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Dubal into those of Trossen, for the reasons mentioned above.

22. **Claims 21,25,26,28,29 and 31** rejected under 35 U.S.C. 103(a) as being unpatentable over US 6119005 (Smolik) in view of US 2002/0085514 (Illidge et al.).

23. **As to claim 21**, Smolik teaches a method of discovering access nodes in a mobile communications network comprising the step of:

k. Receiving a candidate access node list (list of viable pilot channel candidates) from a mobile terminal.

l. Updating the candidate access node list (the neighbor list) to reflect nodes discovered by the mobile terminal (see Smolik, column 1, lines 62-67 and column 2, lines 1-37).

m. Providing an updated candidate list to the mobile terminal (see Smolik, column 5, lines 51-61). Note that the examiner interprets the 'updated neighbor list' as reading on an 'updated candidate list'. Smolik teaches that the candidate list is derived (within the mobile terminal) from the neighbor list (see Smolik, column 9, lines 48-67 and column 10, lines 1-47).

n. What is lacking is the access node providing access to a packet communication network. The access node of Smolik is a base station in CDMA network (see Smolik, column 3, lines 8-11). Smolik is silent on whether this base station provides access to a packet network. In a similar field of endeavor Illidge teaches a base station (103 fig 1B) in a CDMA network (2G and 3G) that provides access to a packet network (128 fig 1B) (see Illidge, paragraphs 11-13). The base station of Illidge improves upon that of Smolik, by providing access to the Internet, as well as the CDMA network. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Illidge into those of Smolik, for the reasons mentioned above.

24. **As to claim 26**, Smolik teaches an access node (base station) having memory and processing means for performing the steps of:

o. Receiving a candidate access node list (list of viable pilot channel candidates) from a mobile terminal.

p. Updating the candidate access node list (the neighbor list) to reflect nodes discovered by the mobile terminal (see Smolik, column 1, lines 62-67 and column 2, lines 1-37).

q. Providing an updated list to the mobile terminal (see Smolik, column 5, lines 51-61). Note that the examiner interprets the 'updated neighbor list' as reading on an 'updated candidate list'. Smolik teaches that the candidate list is derived (within the mobile terminal) from the neighbor list (see Smolik, column 9, lines 48-67 and column 10, lines 1-47).

r. What is lacking is the access node providing access to a packet communication network. The access node of Smolik is a base station in CDMA network (see Smolik, column 3, lines 8-11). Smolik is silent on whether this base station provides access to a packet network. In a similar field of endeavor Illidge teaches a base station (103 fig 1B) in a CDMA network (2G and 3G) that provides access to a packet network (128 fig 1B) (see Illidge, paragraphs 11-13). The base station of Illidge improves upon that of Smolik, by providing access to the Internet, as well as the CDMA network. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Illidge into those of Smolik, for the reasons mentioned above.

25. **As to claim 29**, Smolik teaches a mobile terminal having memory and processing means for performing the steps of:

s. Providing a candidate access node list (list of viable pilot channel candidates) to an access node.

t. Receiving an updated list from the access node (see Smolik, column 5, lines 51-61). Note that the examiner interprets the 'updated neighbor list' as reading on an 'updated candidate list'. Smolik teaches that the candidate list is derived (within the mobile terminal) from the neighbor list (see Smolik, column 9, lines 48-67 and column 10, lines 1-47).

u. Storing the updated candidate list in the memory (see Smolik, column 1, lines 62-67 and column 2, lines 1-37).

v. What is lacking is the access node providing access to a packet communication network. The access node of Smolik is a base station in CDMA network (see Smolik, column 3, lines 8-11). Smolik is silent on whether this base station provides access to a packet network. In a similar field of endeavor Illidge teaches a base station (103 fig 1B) in a CDMA network (2G and 3G) that provides access to a packet network (128 fig 1B) (see Illidge, paragraphs 11-13). The base station of Illidge improves upon that of Smolik, by providing access to the Internet, as well as the CDMA network. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Illidge into those of Smolik, for the reasons mentioned above.

26. **As to claims 25,28 and 31**, the access node of Smolik in view of Illidge further comprises an IP routing circuit (the base station of Illidge routes IP data). The mobile terminal of Smolik in view of Illidge further comprises an IP device (a device that accepts IP data).

27. **Claims 22,27 and 30** rejected under 35 U.S.C. 103(a) as being unpatentable over US 2000/6119005 (Smolik) in view of US 2002/0085514 (Illidge et al.), and further in view of US 2003/6600917 (Maupin).

28. **As to claims 22,27 and 30**, what is lacking is a bitmap table being used to store the candidate node list. Maupin teaches base stations storing information into bitmaps and sending those bitmaps to mobile terminals (see Maupin, column 2, lines 64-67 and column 3, lines 1-20). The motivation for using this teaching can be found in Maupin. Maupin teaches that the mobile terminals decode the bitmaps in order to retrieve the relevant information (see Maupin, column 2, lines 64-67). The use of the word "decode" reads on the bitmaps providing some level of security for the information. It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Maupin into those of Smolik, for the reasons mentioned above.

29. **Claim 23** rejected under 35 U.S.C. 103(a) as being unpatentable over US 2000/6119005 (Smolik) in view of US 2002/0085514 (Illidge et al.) as applied to claim 21, and further in view of US 2004/6813357 (Matsuzaki et al.).

30. **As to claim 23**, what is lacking from Smolik is the step of digitally signing the candidate list prior to sending the candidate list to the mobile terminal. Matsuzaki teaches that data sent from an access node (base station) to a mobile terminal is digitally signed (see Matsuzaki, column 16, lines 13-57). The motivation for using a digital signature can be found in Matsuzaki. Matsuzaki teaches that digital signatures guard against third party tampering (see Matsuzaki, column 16, lines 13-17). Matsuzaki

further teaches that the use of digital signatures enhances the role of base stations. Base stations can be made to hold private information (in addition of public information) that can only be accessed by an authorized terminal (see Matsuzaki, column 16, lines 58-61). It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Matsuzaki into those of Smolik, for the reasons mentioned above.

31. **Claim 24** rejected under 35 U.S.C. 103(a) as being unpatentable over US 2000/6119005 (Smolik) in view US 2002/0085514 (Illidge et al.) and applied to claim 21, and further in view of US/2002/6370380 (Norefors et al.).

32. **As to claim 24**, what is lacking from Smolik is the step of establishing a key for secure message exchange before communicating with the mobile terminal. Norefors teaches a method for establishing a secure message exchange between a mobile terminal and an access node prior to communication (see Norefors, SUMMARY). The motivation for using Norefors teachings can be found in Norefors. Norefors teaches that establishing a secure message exchange prevents unauthorized third party intrusions (see Norefors, SUMMARY). It would have been obvious to one of ordinary skill in the arts at the time the invention was made to combine the teachings of Norefors into those of Smolik, for the reason mentioned above.

### *Conclusion*

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 1999/5884158 (Ryan et al.) teaches a cellular telephone

authentication system using a digital certificate. US 2004/0266393 (Zhao et al.) teaches a method of system access to a wireless network. US 2002/6430414 (Sorokine et al.) teaches a soft handoff and wireless communication system for third generation CDMA systems. US 2004/6813508 (Shioda et al.) teaches an apparatus and method for mobile communication. US 1998/5854981 (Wallstedt et al.) teaches an adaptive neighbor cell list.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mazda Sabouri whose telephone number is 571-272-8892. The examiner can normally be reached on Monday-Friday from 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 561-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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